*Technology*

In human-computer interaction, computer accessibility (also known as Accessible computing) refers to the accessibility a computer system to all people, regardless of disability or severity of impairment. It is largely a software concern; when software, hardware, or a combination of hardware and software, is used to enable use of a computer by a person with a disability or impairment, this is known as [Assistive Technology](http://amazon.co.uk/gp/product/1557988404?ie=UTF8&tag=liviwithcerep-21&link_code=em1&camp=2502&creative=11114&creativeASIN=1557988404&adid=156f5eb5-9bd3-41a2-9ebe-c68264c743b1).

There are numerous types of impairment that impact computer use. These include:

* [Cognitive impairments and learning disabilities, such as dyslexia, ADHD or autism.](http://www.livingwithcerebralpalsy.com/developmental-disability.php)
* [Visual impairment](http://amazon.co.uk/gp/product/1853464120?ie=UTF8&tag=liviwithcerep-21&link_code=em1&camp=2502&creative=11114&creativeASIN=1853464120&adid=21ca67eb-ccff-4ec2-a88e-948111c9f231) such as low-vision, complete or partial blindness, and color blindness.
* [Hearing impairment including deafness or hard of hearing.](http://www.livingwithcerebralpalsy.com/deafness-disability.php)
* Motor or dexterity impairment such as paralysis, cerebral palsy, or carpal tunnel syndrome and repetitive strain injury.

These impairments can present themselves with variable severity; they may be acquired from disease, trauma or may be congenital or degenerative in nature. Accessibility is often abbreviated to the numeronym a11y, where the number 11 refers to the number of letters omitted. This parallels the abbreviations of internationalisation and localisation as i18n and l10n respectively.

**Special needs assessment**

People wishing to overcome impairment in order to be able to use a computer comfortably and productively may need a "[special needs assessment](http://amazon.co.uk/gp/product/1444122029?ie=UTF8&tag=liviwithcerep-21&link_code=em1&camp=2502&creative=11114&creativeASIN=1444122029&adid=026b514e-2854-428d-b6eb-e6b2c95fec3d)" by an assistive technology consultant to help them identify and configure appropriate assistive hardware and software. Where a disabled person is unable to leave their own home, it is possible to assess them remotely using remote desktop software and a webcam. The assessor logs on to the client's computer via a broadband Internet connection. The assessor then remotely makes accessibility adjustments to the client's computer where necessary and is also able to observe how they use their computer.

**Considerations for specific impairments**

Cognitive impairments and illiteracy

The biggest challenge in computer accessibility is to make resources accessible to people with cognitive disabilities - particularly those with poor communication skills - and those without reading skills.

[**Visual impairment**](http://www.livingwithcerebralpalsy.com/vison-cerebral.php)

Another significant challenge in computer accessibility is to make software usable by people with visual impairment, since computer interfaces often solicit input visually and provide visual feedback in response. For individuals with mild to medium vision impairment, it is helpful to use large fonts, high DPI displays, high-contrast themes and icons supplemented with auditory feedback and screen magnifying software. In the case of severe vision impairment such as blindness, screen reader software that provides feedback via text to speech or a refreshable Braille display is a necessary accommodation for interaction with a computer. About 8% of people, mostly males, suffer from some form of colour-blindness. In a well-designed user interface, colour should not be the only way of distinguishing between different pieces of information. However, the only colour combinations that matter are those that people with a deficiency might confuse, which generally means red and green and blue and green.

[An example in Web accessibility](http://www.livingwithcerebralpalsy.com/web-access.php) is a set of guidelines and two accessible web portals designed for people developing reading skills are peepo.com try typing a letter with your keyboard for more and peepo.co.uk with enhanced graphics, unique style controls and improved interactivity (requires an SVG supported browser).

**Motor and dexterity impairments**

Some people may not be able to use a conventional input device, such as the mouse or the keyboard. Therefore it is important for software functions to be accessible using both devices; ideally, software uses a generic input API that permits the use even of highly specialized devices unheard of at the time of software development. Keyboard shortcuts and mouse gestures are ways to achieve this. More specialized solutions like on-screen software keyboards and alternate input devices like switches, joysticks and trackballs are also available. Speech recognition technology is also a compelling and suitable alternative to conventional keyboard and mouse input as it simply requires a commonly available audio headset.

[Download Keyboard and Mouse Alternatives Factsheet](http://www.livingwithcerebralpalsy.com/pdfs/Keyboard%20and%20Mouse%20Alternatives.pdf) - right click and "save target as".

The astrophysicist [Stephen Hawking](http://amazon.co.uk/gp/product/0593058291?ie=UTF8&tag=liviwithcerep-21&link_code=em1&camp=2502&creative=11114&creativeASIN=0593058291&adid=d7f22812-b7d5-4e27-b948-98e32be50694) is a famous example of a person suffering from motor disability. He uses a switch, combined with special software, that allows him to control his wheelchair-mounted computer using his remaining small movement ability. This performs as a normal computer, allowing him to research and produce his written work, and as a Voice Output Communication Aid (VOCA) and environmental control unit.

[**Hearing impairment**](http://www.livingwithcerebralpalsy.com//deafness-disability.php)

While sound user interfaces have a secondary role in common desktop computing, usually limited to system sounds as feedback, software producers take into account people who can't hear, either for personal disability, noisy environments, silence requirements or lack of sound hardware. Such system sounds like beeps can be substituted or supplemented with visual notifications and captioned text (akin to closed captions).